REMARKS

The Examiner's communication dated May 28, 2010 has been received and carefully considered. In conformance with the applicable statutory requirements, this paper constitutes a complete reply and/or bona fide attempt to advance the application to allowance. Specifically, claims 2, 4, 5, 7 and 8 have been amended to further emphasize the patentable features of the present invention. In addition, detailed arguments in support of patentability are presented.

Reexamination and/or reconsideration of the application as amended are respectfully requested.

Summary of Office Action

Claims 2, 4-11 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claims 2, 4-11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tadashi et al (JP 6016138).

I. 35 U.S.C. §112, second paragraph

Claims 2, 4-11 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. The Office Action states that Applicant recites a catalogue of parts without an interrelationship between the parts and therefore the claims are unclear, vague and indefinite. Applicant has amended independent claims 1, 4, 5 and 8 to further define the interrelationship between the parts and to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

II. The Claims Distinguish Patentably Over the References of Record

With respect to Claim 2, as amended, Applicant submits that the subject matter patentably differs from the art taught in Tadashi. Claim 2 now calls for a work assembling device for assembling an assembly part to a work including at least two faces. Each face of the work has a part assembly surface. The device comprises a work holding jig, a part gripping device and a fastening tool. The work holding jig converts each part assembly surface sequentially to an upward horizontal attitude by

selectively rotating the work. The work holding jig has a first portion configured to rotate the work about a first axis and a second portion configured to rotate the work about a second axis. The part gripping device is provided at an upper part of the work holding jig and is configured to position the assembly part above the work. The part gripping device fastens an associated fastener in a vertical direction relative to the upward horizontal attitude to secure the assembly part to one of the part assembly surfaces of the work. The part gripping device includes a pair of arms and a claw. The arms and the claw are adapted to support a bottom face of the assembly part. The fastening tool is provided at a tip end of at least one of the arms of the part gripping device for fastening the associated fastener.

With reference to Figs. 5-7 of Tadashi, a work 10, such as a gear box having a plurality of stub bolts 11 screwed loosely on four faces, is mounted on a pallet 24 to be carried through a conveyer 12 and stopped at a stopping jig upon arrival of the pallet onto a lifter 27. Then the pallet 24 is lifted by the lifter 27 and moved onto guides 40, 41 through reciprocal motion of a hook 45. A lifter 36 lifts the pallet 24 and holds the work 10 between the pallet and a disc 34. Under this state, the functions of a robot 18 are controlled to perform tightening work of the stud bolts 11 on each working face.

In addressing the limitations of the pending claims, the Office Action provides the English language abstract of Tadashi (which Applicant also provided above). The Office Action fails to identify the claimed work holding jig and part gripping device and merely directs Applicant to selective figures of Tadashi as teaching these claimed elements. The Office Action also concedes that Todashi does not teach certain limitations, but simply states that those missing features would have been obvious modifications to the Tadashi assembling device. It is improper for the Office Action to fail to address each and every limitation of the claims and then to gloss over certain of the limitations as being obvious to one of ordinary skill in the art. Applicants submit that the proposed modifications of Tadashi are not obvious simply because the Examiner says it is so. *KSR* has made it very clear that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusions of obviousness. The Office Action has failed to

provide same. Thus, Applicant can only conclude that the proposed modifications of Tadashi are provided only for the purposes of rejecting the claims. Despite the shortcomings of Tadashi, and the Office Action's cursory examination of the claims, Applicant will address the abstract and figures of Tadashi to further prosecution of the present application.

Regarding claim 2, the Office Action references Figs. 2 and 3 of Tadashi as disclosing a work holding jig and Fig. 1 as disclosing a part gripping device having a claw (*see page 4 of the Office Action*). Fig. 2 of Tadashi appears to show a robotic arm having a tool 4 which engages a part 3. Fig. 3 of Tadashi discloses a robotic arm 6a, 6b performing work to surfaces 5a,5b of a part via tools attached to the robotic arms. The identified figures of Tadashi fail to disclose the claimed work holding jig having a first portion configured to rotate the work about a first axis and a second portion configured to rotate the work about a second axis. The parts shown in Figs. 2 and 3 of Tadashi are simply placed on a conveyer belt which moves the parts between different workstations. Further, as shown in Fig. 5 of Tadashi, a part 10 is placed on a pallet 24. Once the pallet is in a proper position on a conveyer 12, the pallet is lifted by a lifter 27 and then is moved onto guides 40, 41 via a hook 45. The part is then elevated by a second lifter 36 and is then rotated via a disc 34 so that tightening work of studs 11 on the working face of the part 10 can be performed. Neither lifter 27, lifter 36 nor disc 34, taken alone or in combination, rotates the part 10 about a first axis and a second axis.

Tadashi also fails to disclose the claimed part gripping device having a pair of arms and a claw for supporting a bottom face of an assembly part and for fastening a fastener in a vertical direction to secure the assembly part to one of the work faces. In an attempt to address these limitations, the Office Action identifies Fig. 1 as disclosing a claw provided on a part gripping device. However, this alleged claw provided on a lifting device is not supporting a bottom face of an assembly part. Rather, the claw attaches to an upper portion of an object and the lifting device then moves the object from point A to point B. Applicant also submits that it is improper to simply conclude that this object being lifted from point A to point B is an assembly part to be secured to the work 10. Further, as shown in Fig. 7 of Tadashi, tightening work of the bolts 11 on each working face of the work 10 is performed only in a

horizontal position due to the orientation of the lifter 36 and disc 34. No tightening can be performed in the vertical direction as required by claim 2.

Therefore, the Office Action's interpretation of Tadashi is not a fair interpretation and the proposed modifications of Tadashi are merely being asserted by the Examiner to meet the claim limitations. Accordingly, Claim 2, as amended, defines patentably and unobviously over the references of record and is in condition for allowance.

With respect to Claim 4, as amended, Applicant submits that the subject matter patently differs from the art taught in Tadashi. Claim 4 now calls for a work assembly method for assembling an assembly part to a work including at least two faces, each face having a part assembly surface. A work holding jig is provided and configured to sequentially convert one of the part assembly surfaces of the work to an upward horizontal attitude by selectively rotating the work of about two axes which are perpendicular to each other. An assembly part is sequentially positioned above one of the part assembly surfaces. An associated fastener is fastened vertically by inserting the associated fastener into at least one bolt fastener insertion hole in advance. A socket of a fastening tool is fitted with the fastener for positioning. As set forth above, Tadashi fails to disclose or fairly suggest a work holding jig configured to sequentially convert one of the part assembly surfaces of the work to an upward horizontal attitude by selectively rotating the work about two axes which are perpendicular to each other. Rather, as shown in the Figures 5-7 of Tadashi, the work 10 is first lifted by lifter 27, moved to lifter 36, and then lifted to disc 34, which then rotates the work so that the bolts 11 on each work face can be tightened. Accordingly, for at least this reason, Tadashi fails to disclose or fairly suggest the limitations of Claim 4. Therefore, Claim 4, as amended, patentably and unobviously defines over the references of record and is in condition for allowance.

With respect to Claim 5, Applicant submits that the subject matter patentably defines over Tadashi. Claim 5 now calls for a work assembly device comprising a substantially L-shaped work holding jig including a holding portion provided on one face of the work holding jig for detachably holding the work. A first rotating mechanism rotates the holding portion. A part of the first rotating mechanism is provided on the other face of the work holding jig. A second rotating mechanism

rotates the work holding jig. A connecting mechanism and the second rotating mechanism are provided on the other face of the work holding jig. A column is provided with a driving portion and is detachably connected to the work holding jig via the connecting mechanism. The attitude of the work is converted by driving the driving portion while the work holding jig is connected to the column and all of the part assembling surfaces are held in an upward horizontal state by a combination of rotation of the holding portion and rotation of the work holding jig.

The Office Action directs Applicants to Figs. 2 and 3 of Tadashi as disclosing an L-shaped work holding jig. As indicated previously, Figs. 2 and 3 of Tadashi simply shows a part on a conveyer having work performed by a robot. No L-shaped work holding jig is shown. Again, the Office Action fails to identify which components of Tadashi are the claimed holding portion, first rotating mechanism, second rotating mechanism and connecting mechanism of the work holding jig. The Office Action also fails to identify which component of Tadashi is the claimed column provided with a driving portion and detachedly connected to the work holding jig. In fact, the Office Action fails to even mention the claimed column in addressing the limitations of Claim 5. Again, to further prosecution, Applicant will address the limitations in view of Tadashi. It is clear that the lifter 27 and lifter 36 of Tadashi do not rotate the work 10. Rather, lifter 27 lifts the work so that it can be engaged by the hook 45. Lifter 36 lifts the work so that it can be engaged by the disc 34. Applicant does submit that the disc 34 rotates the work 10. However, there is no disclosure of the claimed second rotating mechanism for rotating the work holding jig. Accordingly, Claim 5, as amended, and claims dependent thereon, distinguish patentably and unobviously over the references of record and are in condition for allowance.

With respect to Claim 8, as amended, Applicant submits that the subject matter patentably differs from the art taught in Tadashi. Claim 8 now calls for a gripping device including an arm having an oscillating member provided with a claw that can support a bottom face of the assembly part. The oscillating member is further provided with a fastening tool and a socket that can be freely fitted on a bolt head of a bolt inserted into a bolt insertion hole located on the assembly part. The socket has a position detecting means for detecting a position of the socket.

As indicated previously, the Office Action references Fig. 1 as disclosing a gripping device including a claw. Again, the claw shown in Fig. 1 of Tadashi moves an object from point A to point B. The claw does not support a bottom face of an assembly part. Further, the robots shown in Figs. 2 and 3 of Tadashi do not disclose an arm having an oscillating member. Rather, Tadashi shows robot 68 being tilted for performing work on an angled surface 5b of the work. The tilting of a robotic arm is not an arm having an oscillating member. The Office Action also simply fails to address the claimed socket having a position detecting means for detecting a position of the socket in Tadashi. Accordingly, Claim 8, as amended, and claims dependent thereon, distinguish patentably and unobviously over the references of record and are in condition for allowance.

CONCLUSION

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 18-0160, our Order No. KOY-16791.

Respectfully submitted,

RANKIN, HILL & CLARK LLP

By /Robert A. Sidoti/
Robert A. Sidoti, Reg. No. 48416

38210 Glenn Avenue
Willoughby, Ohio 44094-7808
(216) 566-9700